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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/777,212	02/13/2004	Sylvia Tidwell Scheuring	2736-126	2484
6449	7590	05/05/2008		
ROTHWELL, FIGG, ERNST & MANBECK, P.C. 1425 K STREET, N.W. SUITE 800 WASHINGTON, DC 20005			EXAMINER LEE, BENJAMIN WILLIAM	
			ART UNIT 3714	PAPER NUMBER
			NOTIFICATION DATE 05/05/2008	DELIVERY MODE ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

PTO-PAT-Email@rfem.com

<b>Office Action Summary</b>	<b>Application No.</b> 10/777,212	<b>Applicant(s)</b> SCHEURING ET AL.	
	<b>Examiner</b> Benjamin W. Lee	<b>Art Unit</b> 3714	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 08 February 2008.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-11, 17-23 and 39-43 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-11, 17-23 and 39-43 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>2/8/2008</u> .  | 6) <input type="checkbox"/> Other: _____                          |

### **DETAILED ACTION**

1. The amendment filed 02/08/2008 has been entered. Claims 1-11, 17-23, and 39-43 are pending in this application. Claims 12-16 and 24-38 have been cancelled. Claims 42 and 43 are new. Claims 1, 17, 18, 22, 23, and 39-41 have been amended.

#### ***Information Disclosure Statement***

2. The information disclosure statement filed 02/08/2008 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each cited foreign patent document; each non-patent literature publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the information referred to therein has not been considered.

#### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 2, 10, 11 are rejected under 35 U.S.C. 102(b) as being anticipated by Ho et al. (US 5,727,951, hereinafter Ho).

Re claim 1: Ho discloses a system for evaluating relationships between learning targets, wherein each learning target is a discrete learnable concept (i.e. line items and relationship-items, see col. 3, line 34 - col. 4, line 64), the system comprising means for creating a learning map, which comprises an acyclic directed network that expresses learning target dependencies including precursor and postcursor relationships between learning targets, wherein a first learning target is a precursor of a second learning target if lack of knowledge of the first learning target implies a lack of knowledge of the second learning target and a first learning target is a postcursor of a second learning target if knowledge of the first learning target implies knowledge of the second learning target (see col. 4, lines 42-64), and means for assessing whether the learning target dependencies expressed by the learning map are accurate based on assessment data (see col. 5, lines 27-42).

Re claims 2, 10, and 11: The teachings of Ho as applied to claim 1 above have been discussed. Ho further discloses means for modifying the learning map wherein the modifying means comprises means for modifying the learning map in response to assessing means determining that one or more learning target dependencies expressed by the learning map are not accurate (changing the mode between learnt and unlearnt, see col. 5, lines 27-42). The information is collected from assessments of a student (see col. 1, line 56 - col. 2, line 3).

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Art Unit: 3714

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 3-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ho in view of Srinivasan et al. (U.S. Patent No. 5,852,822, hereinafter Srinivasan).

The teachings of Ho as applied to claim 1 above have been discussed.

However, Ho fails to explicitly disclose modifying the learning map by merging redundant entries and splitting entries with more than one concept.

Srinivasan teaches merging nodes and splitting nodes (see col. 6, lines 8-21).

Therefore, in view of Srinivasan, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Ho to merge redundant entries and split large entries in order to optimize the performance and efficiency of the learning map. Eliminating redundant entries and limiting entries to one learning target keeps makes the tree/map easier to read and limiting the nodes to one learning target ensures that each learning target is independently related to other learning targets.

8. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ho.

The teachings of Ho as applied to claim 1 above have been discussed.

However, Ho fails to explicitly disclose assessing whether the learning target dependencies expressed by the learning map are accurate includes means for assessing whether the learning target dependencies expressed by the learning map are accurate with respect to a first subset of students and means for assessing whether the learning target dependencies expressed by the learning map are accurate with respect to a second subset of students.

The addition of checking learning target dependencies against another set of students does not add any patentable significance over claim 1 since adding another check against another group of students is merely duplication of parts and a new and unexpected result is not produced. See MPEP § 2144.04(VI).

9. Claims 17-23 and 39-43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ho in view of Sheehan (US 6,144,838).

Re claims 17 and 18: Ho discloses a method for creating a learning map, comprising specifying a set of learning targets, wherein each learning target is a discrete learnable concept (i.e. line items and relationship-items, see col. 3, line 34 - col. 4, line 64), specifying learning target dependency relationships for the specified learning targets (see col. 4, lines 42-64), for each specified learning target, specifying the learning targets that are precursors or postcursors of the learning target, thereby specifying precursor/postcursor learning target pairs, wherein a first learning target is a precursor of a second learning target if lack of knowledge of the first learning target implies a lack of knowledge of the second learning target and a first learning target is a postcursor of a second learning target if knowledge of the first learning target implies knowledge

of the second learning target (see col. 4, lines 42-64) and creating or updating probabilities, which includes inference values based on the specified set of learning targets and the specified learning target dependency relationships (see Fig. 5; col. 6, lines 15-40).

Ho fails to disclose putting the conditional probabilities in a table and displaying the learning map as an acyclic directed network corresponding to the conditional probability table, wherein the acyclic directed network comprises a node for each specified learning target and one or more arcs for illustrating specified learning target dependency relationships.

However, applicant has not disclosed that arranging the probabilities in a table solves any stated problem or is for any particular purpose. Moreover, it appears the probabilities of Ho would perform equally well in a form other than a table. Accordingly, it would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to have modified Ho such that the probabilities were placed in a table because such a modification would have been considered a mere design consideration which fails to patentably distinguish over Ho.

Sheehan discloses displaying an acyclic network as nodes connected by arcs (see Fig. 1).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to display the acyclic network of relationship-items of Ho as a map of nodes interconnected by arcs because such a display provides a clear visualization of the relationships between each item.

Re claim 19: The teachings of Ho as applied to claim 18 above have been discussed. Ho inherently discloses prior to specifying a postcursor inference value and a precursor inference value for a precursor/postcursor learning target pair, the method comprises the step of

Art Unit: 3714

determining the postcursor inference value and the precursor inference value. Logically, the values must be determined before they can be specified.

Re claims 20-23, 42, and 43: The teachings of Ho as applied to claim 19 above have been discussed. Ho discloses using assessment to verify the validity of the relationships (see col. 5, lines 27-42) and using thresholds to determine validity of relationships (see Fig. 5; col. 6, lines 15-40).

However, Ho fails to explicitly disclose the precursor/postcursor inference values are determined by dividing the number of students demonstrating mastery by the total number of participating students.

Official Notice was taken in the Office Action dated 10/09/2007 that both the concept and advantages of using the results of student testing to determine probabilities related to mastery of subject material is old and well known in the art. Applying statistical analysis to a small sample set of students in order to provide overall probability is old and well known in the art. Since the applicant's traverse of the official notice is not adequate, the official noticed facts are now considered admitted prior art. See MPEP § 2144.03(C).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the method of Ho by determining postcursor/precursor inference values by using the percentages of correct results of students in order to show the correlations between different subject areas.



Re claims 39-41: Ho discloses a method for creating learning maps comprising creating a first learning map and verifying the accuracy of the first learning map (see col. 5, lines 27-42).

However, Ho fails to explicitly disclose creating subsequent learning maps based on further subsets of students.

Official Notice was taken in the Office Action dated 10/09/2007 that both the concept and advantages of revising a document based on further testing is old and well known in the art. Creating a hypothesis, experimentally testing the hypothesis, and modifying the hypothesis based on the testing is old and well known. Since the applicant's traverse of the official notice is not adequate, the official noticed facts are now considered admitted prior art. See MPEP § 2144.03(C).

Therefore, it would have been obvious to one of ordinary skill in the art to create further learning maps based on earlier inaccurate learning maps and new experimental data and to check the new learning maps against all students subsets in order to further increase the accuracy of the learning maps.

### ***Response to Arguments***

10. Applicant's arguments with respect to claims 1-41 have been considered but are moot in view of the new ground(s) of rejection.

11. Applicant's arguments filed 02/08/2008 have been fully considered but they are not persuasive.

The examiner respectfully disagrees with the argument that the Official Notice taken in the previous fails to read upon the specific steps recited in claims 20-23 and 39-41 (see Remarks, pages 16-17. The Official Notice taken by the examiner were for the general concepts of using test results to determine probabilities of mastery by dividing those who mastered the concept by the total number of students (as applied to claims 20-23) and revising a document through iteration (as applied to claims 39-41). The details of steps do not produce any new or unexpected results. Rather, the broad concepts which were officially noticed would read on the limitations of the claims when applied to the primary reference (previously Sheehan, and now Ho).

The examiner respectfully disagrees with the argument that Srinivasan does not disclose merging two or more learning targets that are determined to represent a single targeted concept or splitting a learning target that is determined to represent two or more concepts (see Remarks, page 18). The applicant is correct that Srinivasan does not deal specifically with learning maps. However, a learning map has a similar structure to a tree (an acyclic network of nodes), wherein each node represents a learning target/concept. Therefore, it would have been obvious to apply the old and well-known techniques of merging and splitting nodes to a learning map since such a modification is the use of known techniques (splitting and merging) to improve similar devices in the same way (trees and learning maps).

### ***Conclusion***

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Tatsuoka, Jay, and Kellman disclose systems of correlating educational requirements/test items.

Art Unit: 3714

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Benjamin W. Lee whose telephone number is 571-270-1346.

The examiner can normally be reached on Mon - Fri (8:30 - 5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Pezzuto can be reached on 571-272-6996. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/B. W. L./  
Examiner, Art Unit 3714

/Ronald Laneau/  
Supervisory Patent Examiner, Art Unit 3714  
04/28/08